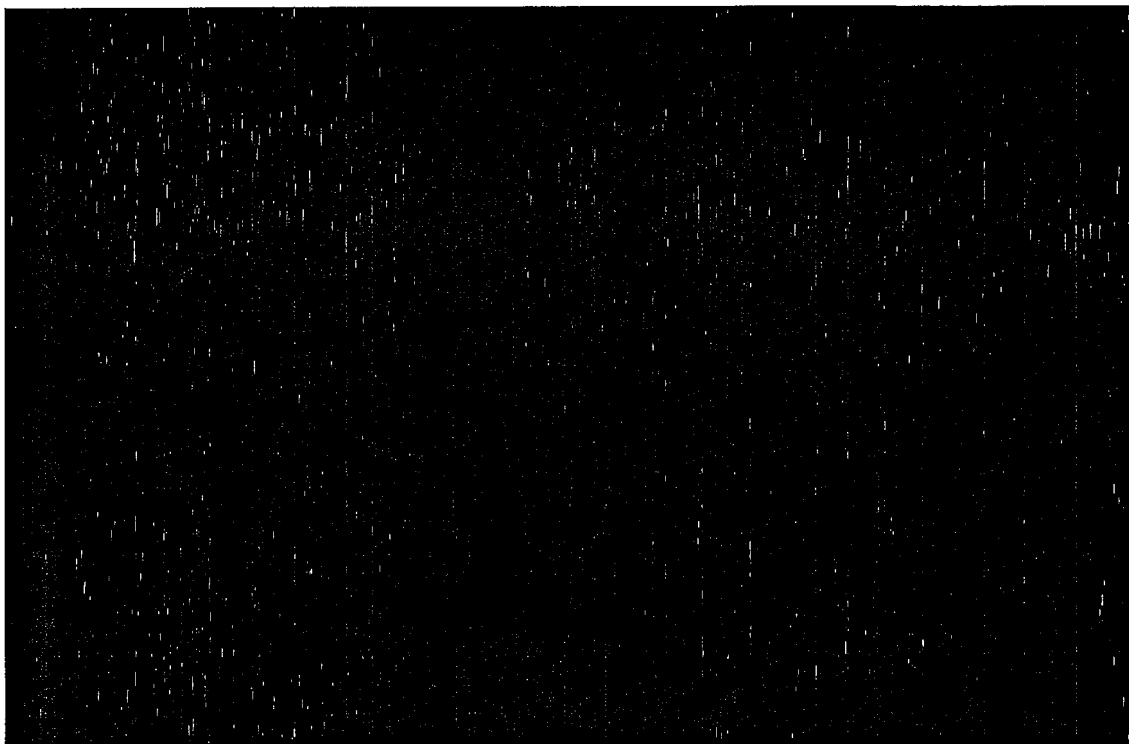


EXHIBIT A

Adding State to AUTD Sync Notifications

Paul Limont: plimont@microsoft.com



Solution Overview

Nexus currently writes information to the deviceInfo XML file after each successful sync. Consequently, we can use the resource tags on this file as a mechanism for determining whether the device is in sync with the server or not at the time an event fires. Using this mechanism, we'll be able to be more intelligent about how we notify the device.

Design

Device State Correlation with RTAG

The OMA Push categorization sink will track the last known rtag for each device. With this information, there are two determinations that can be made regarding the state of the AUTD device when an event fires:

- device was in sync with the server prior to this event and now needs to be notified
 - stored rtag != current rtag

- device has been notified and is pending sync
 - stored rtag == current rtag



Storage of State and Timeout information

OMA Push will maintain a notification state file in the users non-IPM subtree with the following schema:

```
<notificationState>1...1
  <device>1...unbounded
    <deviceID>...</deviceID>1...1
    <rtag>...</rtag>1...1
    <timeout>...</timeout>1...1
  </device>
</notificationState>
```

Batching Algorithm

The following steps characterize the batching algorithm we'll be employing:

1. Event of interest occurs in end user's mailbox
2. OMA Push EES onSave method is called
3. EES retrieves user's deviceInfo & notificationState files and submits SMTP notification to pickupDir.
4. Cat Sink gets notification from pickupDir and reads, amongst other things, the deviceInfo and notificationState
5. Cat Sink reads the current rtag from the deviceInfo file
6. The Cat Sink will take the following actions based on the current rtag and the rtag/timeout elements (presumably in the same place it deals with the expiry time currently).

Pseudo...

```
For every device in deviceInfo file
  If (<rtag> != current rtag)
    Set <rtag> to current rtag;
    Set <timeout> to time + X minutes;
    Send notifications;
  Else If (<rtag> == current rtag && CurrentTime > <timeout>)
    Set timeout to time + X minutes;
    Send notifications;
  Else
```

Do Nothing

7. Device receives notification and attempts sync.
8. If sync succeeds, Nexus writes the following to the deviceInfo XML file:

